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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339.	Rulemaking 19-09-009 (Filed September 12, 2019)

OPENING COMMENTS OF THE NATIONAL FUEL CELL RESEARCH CENTER ON THE ORDER INSTITUTING RULEMAKING REGARDING MICROGRIDS PURSUANT TO SENATE BILL 1339

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October 21, 2019

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I. Introduction

In accordance with Rule 6.2 of the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission"), and Ordering Paragraph 4 of the Order Instituting Rulemaking ("OIR") Regarding Microgrids Pursuant to Senate Bill 1339 issued on September 12, 2019 in the above captioned proceeding, the National Fuel Cell Research Center ("NFCRC") respectfully submits opening comments on the preliminary scope of the proceeding.

II. Comments

A. General Comments

The NFCRC facilitates and accelerates the development and deployment of fuel cell technology and fuel cell systems; promotes strategic alliances to address the market challenges associated with the installation and integration of fuel cell systems; and educates and develops resources for the various stakeholders in the fuel cell community. The NFCRC was established at the University of California, Irvine by the U.S. Department of Energy and the California Energy Commission with the goal of both developing and transitioning to a form of power generation that is energy efficient, resilient and environmentally sensitive. The DOE has recognized the significance of the NFCRC efforts in bringing government agencies, business and academia together to develop effective public-private alliances -- in the case of the NFCRC, in order to develop advanced sources of power generation, transportation and fuels.

The topic of microgrids is more critical than ever, as California's electrical load is projected to increase substantially to meet the State's climate, clean energy and clean air goals, and address climate change impacts and the recent Public Safety Power Shutoffs (PSPS), all of which have precipitated power outages lasting up-to-five days or longer.

Summary of Recommendations

In this "new normal" [1] of climate change impacts, California needs timely implementation and deployment of microgrids across the State. The NFCRC suggests the Commission:

[1] The recent series of catastrophic wildfires in California have been called "the new abnormal" by Governor Brown and others. https://thehill.com/homenews/state-watch/416167-california-governor-on-wildfires-this-is-the-new-abnormal; https://www.ioes.ucla.edu/event/las-new-abnormal-mega-wildfires/

1. **Take a technology neutral approach SB 1339 implementation to ensure a diverse suite of solutions to maintain critical energy services through extended grid outages.**
2. **Accelerate the development of microgrids under current incentive structures in the proceeding, to facilitate the rapid deployment of microgrids prior to the next fire season in 2020, consistent with legislative intent.**

B. Responses to OIR Questions

1. Appropriateness (or lack thereof) of issues included in the preliminary scope of this proceeding

The NFCRC finds the eight issues included in the preliminary scope of the proceeding to be appropriate and provides further comments about the timing and sequencing of these issues in Section 3 below.

2. Additional issues that should be included in the scope of this proceeding

The NFCRC requests that the Commission maintain technology neutrality in the implementation of SB 1339. Every microgrid is unique to the site on which it is installed, and the ultimate standards and rates should facilitate installation of the most efficient, resilient system while maintaining cost-effectiveness.

Given the different and unique benefits of using the technologies that are determined to be most appropriate for individual microgrids, the NFCRC emphasizes the importance of a technology neutral approach in addressing the various issues included in the proceeding scope. Such an approach recognizes different microgrid load profiles, energy needs, and end uses of consumers and the

immediate need to protect Californians from short- and long-duration outages caused by wildfires, earthquakes, extreme weather and Public Safety Power Shutoffs.

Non-combustion fuel cells, paired with storage, wind, solar, demand response, or other technologies, can serve as the backbone for microgrids that integrate numerous distributed energy resources and controls. Microgrids that use fuel cell systems as baseload power are able to immediately disconnect from the grid and island (operate autonomously) from the larger grid when circumstances demand (e.g., during grid outages or PSPS events). The fuel cell installation innately operates as an energy management system, with critical loads for backup power already identified and immediately followed in the case of an outage. A fuel cell system can smoothly transition from grid parallel operation to fully power the load for any length of grid outage, without interruption to the end user, and to seamlessly re-connect to the utility grid network when its power is restored.

3. Appropriate prioritization or sequencing of topics and activities that should be handled in this proceeding leading to Commission decision(s)

While the NFCRC agrees with the inclusion of the above areas in the scope of this proceeding, we would like to make recommendations on what areas should be addressed in the near-term, per the OIR suggestion "that issue areas may be decided upon individually in interim decisions, if necessary."

PG&E has stated that "the utility tries to restore power within 24 to 48 hours of the end of a weather event — but because of the size of this shutoff and the need to

conduct safety check once it is over, customers should prepare for their power to be out for multiple days."[2]

SB 1339 was intended to address the current fire season and requires the Commission "to take specified actions by December 1, 2020."[3] The Commission has an obligation to address sufficient areas of this proceeding to allow the deployment of additional microgrids prior to the onset of the next fire season, or within six months after the acceptance of the OIR. Specifically, **the NFCRC recommends that, in an interim decision, the Commission allow for the interconnection of multiple technologies (such as solar, fuel cell and storage) at one microgrid site.** Technically, this would create the most efficient, resilient and long-duration microgrids. In the interest of public safety, there should be no delay in allowing multiple technologies to interconnect in a microgrid, if they comply with existing rules, meet all current standards and Rule 21 safety requirements and standards.

Such microgrids are already in operation, replacing diesel generators and reducing air toxics, criteria air pollutants and greenhouse gases. The University of California, San Diego runs a microgrid with a photovoltaic system, a fuel cell system and a gas turbine to create exceptional redundancy. The Marcus Garvey Village microgrid in Brooklyn, New York is also an example of such a multi-technology installation. This project was installed under the Brooklyn Queens Demand Management Demand Response program and uses solar, storage, and fuel cell technologies in one microgrid, to optimize the efficiency, reliability, and affordability of the project and improve neighborhood air

[2] https://www.kqed.org/news/11778706/pge-power-shutoffs-what-you-need-to-know
[3] Senate Bill 1339, Chaptered September 19, 2018 at 90.

quality. Such systems could easily be replicated across California and in high fire threat areas.

States, utilities, and customers across the Northeast have opted to use resilient, long-duration microgrids with fuel cells and other technologies in response to increasingly frequent natural disasters and grid interruption events. The need for long-duration power generation from DER was apparent as some of these natural disasters, such as Winter Storm Alfred in 2011 and Superstorm Sandy in 2012, caused grid outages for weeks at a time. In response to these and other extended outages, the towns of Woodbridge and Hartford, Connecticut have installed microgrids to maintain essential community services during extended outages – and serve as examples of what is possible for California to handle public safety power shutoffs and emergency events.

- United Illuminating's Woodbridge facility uses a 2.5 MW combined heat and power fuel cell resource enabling a municipal micro-grid. This microgrid supplies primary power to the grid, heat to a high school and maintains backup power during outages for six critical town buildings: a fire department, senior center, police department, town hall, public works department, and library.
- Constellation Energy has developed a fuel cell-based community microgrid for the City of Hartford, Connecticut. This microgrid provides 100% of power for an elementary school, a public library, a senior center and a health center. In the event a of grid outage, the system also powers the critical loads of a nearby gas station and supermarket to maintain essential services in the community.

To rapidly enable the installation of these types of microgrids in California, the Commission should support the use of the existing tariffs for individual

technologies in microgrids, which are currently being installed under Rule 21 standards, which should not require the detailed codes and standards work of this proceeding. Existing tariffs should be combined to enable the immediate installation of microgrids with multiple technologies, including fueled power generation, that can effectively carry the required loads during the full duration of the extended outages.

With respect to the 24-month period for other decisions in the Microgrid Proceeding proposed by the Commission, the NFCRC supports the development of rates, tariffs and standards that would further facilitate the use of multiple technologies in microgrids and remove barriers by creating one tariff per microgrid site.

4. Specific issues previously addressed or underway in other Commission proceedings that require coordination with this rulemaking.

The NFCRC has no comment on this question.

IV. Conclusion

The NFCRC thanks the Commission for the opportunity to comment on the proposed scope of the proceeding in the Microgrid OIR.

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Respectfully submitted,

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